

ABSTRACT

There is disclosed herein a method of enhancing the vertical resolution of an induction tool, in a manner that may advantageously also reduce undesirable borehole and “negative resistivity” effects. In one embodiment, the method comprises: a) obtaining a vertical magnetic dipole (VMD) response signal from a transmitter-receiver array of antenna elements having magnetic dipoles oriented parallel to a tool axis; b) obtaining a horizontal magnetic dipole (HMD) response signal from a transmitter-receiver array of elements having magnetic dipoles oriented perpendicular to the tool axis; and c) combining the VMD and HMD response signals to obtain a combination response signal. When the relative weights of the VMD and HMD response signals are set as described herein, the combination response signal (and any log calculated therefrom) has a narrow, substantially rectilinear, vertical measurement profile. Further, the combination response signal is relatively insensitive to borehole effects.